Discussion Draft for
Guidelines for School District Education Technology Planning

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Version 4.0

This guide and the associated templates are available electronically on the California Department of Education Web site at www.cde.ca.gov/edtech

Draft for discussion only

PREFACE
PLANNING FOR SCHOOL IMPROVEMENT IN CALIFORNIA

Virtually all schools and all school districts in California are required to plan. Comprehensive school improvement planning is required of all schools receiving state categorical funding and of all school districts receiving federal Title I funding. Some low performing schools also receive additional funding to develop improvement plans under the State Immediate Intervention/Underperforming Schools Program. Many individual programs, including the Digital High School Program and the federal E-Rate Program, also require plans. And, after January 1, 2002, every program providing education technology funding in California will require a local education technology plan. Descriptions of the various school improvement planning requirements are included in Appendix A.

By and large, each of the above planning efforts have one underlying goal…to improve education to better prepare California students to become productive adults. Specifically this means that each of these plans has as its driving force the goals of assisting (1) all students in California to master the State Content **Standards** in English-Language Arts, Mathematics, Science, and History-Social Science, and (2) every school to meet its Academic Performance Index (API) target under the Public School Accountability Act. While each of the required plans seeks attainment of these goals through different means, the various plans need to support one another and work together in order for the underlying goals to be achieved.

Education Technology Planning
Education Code section 51871.5 requires that by January 1, 2002, every school district seeking education technology funding administered by the California Department of Education shall have, as a prerequisite of funding, a local technology plan. The purpose for this planning requirement was to consolidate various technology planning requirements.

> 51871.5. (a) It is the intent of the Legislature that education technology planning be accomplished in the most comprehensive manner possible. To that end, the current practice of developing education technology plans for each funding program should be replaced with a comprehensive local planning process that will enable school districts to apply for grants on an ongoing basis and assist in utilizing available education technology program.

Clearly, education technology planning is only a portion of the overall planning that Californians must do in order to improve the education of our children. The use of technology as a tool to assist students to master the state content **standards** and provide career skills should be included in the comprehensive school district improvement effort. To enhance the probability that this will occur, it is best if the technology plan is not a stand-alone document, but rather is incorporated into the comprehensive school district improvement plan.

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I. OVERVIEW OF EDUCATION TECHNOLOGY PLANNING

Technology can be a powerful tool in improving teaching and learning, as well as school management. However, technology is only a tool, and its use must be planned if it is to promote improved student achievement within the context of the current system of standards, assessment, and accountability. Proper planning for the integration of technology into the curriculum will include the following five essential components:

1. Curriculum
2. Professional Development
3. Infrastructure, Hardware, Technical Support and Software
4. Funding and Budget
5. Monitoring and Evaluation

These five components are one and the same with the five federal E-Rate Program planning questions.

Of the five components, the first one, Curriculum, is the heart of this entire planning process. Decisions made in the Curriculum Component drive the decisions in the rest of the components. The Professional Development Component lays out the methods and schedules for training teachers, administrators, classified staff, and **parents and community members,** where applicable. This training should be aimed at supporting the Curriculum Component of the plan. The Infrastructure, Hardware, Technical Support and Software Component outlines what type and when these various technology resources will be obtained to accomplish the Curriculum and Professional Development Components of the plan. Next, the Funding and Budget Component establishes cost estimates and funding sources to accomplish the previous components of the plan. Finally, the Monitoring and Evaluation Component provides the means by which the school district will monitor if the plan is being accomplished and if it has had the intended effect. If not, this final component also includes a decision-making process that provides for revision of the plan where required.

What is technology?
According to Webster, technology is "the totality of the means employed to provide objects necessary for human sustenance and comfort". But what does that mean for schools, teachers and students? It means computers, and more. Specifically the definition of education technology for purposes of this planning guide includes computers, networked thin clients, television, video, microscopic cameras, computer-based laboratories, digital cameras, personal digital assistant (PDA's) and whatever else will be invented!

A. Why Plan?

The Law Requires a Plan for Future Funding

Education Code Section 51871.5, enacted by AB 598, Soto (Chapter 830, Statutes of 1999) requires school districts to have a three to five-year technology plan as a precondition of receiving any technology grant administered by the California Department of Education after January 1, 2002.

A Comprehensive Up-to-Date Technology Plan is an Application Waiting for a Funding Program

Districts already develop technology plans in order to apply for individual programs. The difference in this new requirement is that the plan is to be comprehensive, encompassing more than one funding source, and thus the resulting plan could be used to apply for a variety of state, federal or private grants. This comprehensive plan should allow school districts to respond to funding opportunities, both public and private, more expeditiously and provide for more coordinated program management once the funds are received.

Proper Planning Saves Time and Money

Local technology planning helps districts to effectively use their technology resources by identifying both current and future needs. Given the limited funding available to education for technology, school districts should minimize the purchase of technology that will quickly be outdated. With technology changing so rapidly, this planning for current and future use can be quite challenging. However, the requirement to develop three to five-year technology plans should help districts think strategically about how current purchases will be consistent with curricular demands over the next several years.

Knowing Where you are Going Gets you There Faster

Comprehensive long-range planning provides the details necessary to accomplish desired change. Just knowing the steps that need to be accomplished can sometimes cause them to happen. Planning increases awareness of particular needs that, in turn, raises awareness of possible solutions. Schools have reported accomplishing their five-year plan in three years primarily because they knew what they wanted and could take advantage of opportunities as they came along.

Planning Together Creates Ownership and Teamwork

In order for all the teachers, administrators, governing board members, **parents, students, and community members** in a district to work towards effective use of technology to support improved student

achievement, it is vital that they come together to develop a common vision. The vision they build is uniquely constructed out of the current circumstances and the future dreams of their school district. After creating their district's long-range vision, these common goals can be turned into a plan by (1) researching possible actions, (2) developing goals and a specific strategy, and (3) outlining an evaluation and monitoring system to guide implementation.

B. What Are the First Step?

Coordination of all Components is Vital to an Effective Plan

While the work can be divided into the five components, it would be ill conceived for each component to be written in isolation. Each component is dependent on the next, and close communication between the groups is vital. Additionally, as all components build from, and support, the Curriculum Component, it probably makes sense to develop this component first and gain stakeholder buy-in on this component prior to proceeding with the rest of the planning.

Assemble all the Existing Plans and Basic Information

The planning process will be enhanced by gathering all the existing plans and necessary information before the first meeting of the planning team. Consider compiling a library of the following documents to assist the planning team:

- Any existing district and/or site technology plans, E-Rate plans, Digital High School plans, Action Plan for Education Technology Staff Development for Grades 4-8 (AB 1339)

- Any comprehensive improvement plans developed under the Immediate Interventions/Under-performing Schools Program, the School-Based Coordinated Categorical Program, five-year Local Improvement Plans, or, WASC reviews

- District budgets, any existing technology inventories, any existing technology standards, any existing master purchasing contracts, and any related plans, such as 1882 Staff Development Plans, and 1274 Plans

Contact the Experts at the California Technology Assistance Project (CTAP) and Read the Pertinent Parts of this Guide

Each California Technology Assistance Project (CTAP) region has people that will assist your district in technology planning. Not only do they have experience in planning, but they also know about business and community partnerships in the area, as well as best practices and cost saving measures that may assist in planning and implementation. To identify the CTAP staff serving your school district, please visit the California Department of Education Web site at www.cde.ca.gov/edtech/. Information regarding regional contacts can be found by clicking on the California Technology Assistance Project (CTAP) under programs.

Every school district's planning process is going to be different, because the planning experience is affected by the current circumstances of the district and prior planning efforts. Even the starting point will vary among districts. To expedite your district's efforts, the following Quick Start suggests a path to follow based upon the current status of technology planning in your district.

QUICK START

Choose the statement that best describes your school district and follow the arrows

Our district technology plan needs to be updated.

Go to page 12 for an overview of Plan Components

ßOR

Go directly to the more detailed Action Steps and Guiding Questions for each component beginning on page 23

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Check Toolkit beginning on page 34 for resources and helpful templates

The district has no technology plan and the technology side of the house has been given the responsibility of developing one.

For background on planning and integrating technology into existing school district improvement efforts, first turn to page 12 for an Overview of Planning. Pay particular attention to building your planning team that is covered on page 13, and focusing the use of technology around supporting the curricular goals of assisting students to master the content standards

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For an overview of the five technology planning components, proceed to page 12 Plan Components

ßOR

Go directly to the more detailed Action Steps and Guiding Questions for each component beginning on page 23

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Check Toolkit beginning on page 34 for resources and helpful templates

The district is developing or updating the school district comprehensive improvement plan and wants to include the use of technology to improve student achievement.

For creating the vision of how technology will support the district's curriculum go to page 10, for a discussion of Determining What You Want to Accomplish

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To determine how the existing planning team should be augmented to include technology, read Who Will Develop the Plan? on page 8

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For an overview of the five technology planning components, proceed to page 12 Plan Components

ßOR

Go directly to the more detailed Action Steps and Guiding Questions for each component beginning on page 23

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Check Toolkit beginning on page 34 for resources and helpful templates

C. Who Should Develop the Plan?

Include all the Stakeholders

Selecting the team that will research and write the plan is very important. It is important to not only have people knowledgeable about technology on the team, but also the people who will implement the plan so that they have ownership and a comfort level that the plan will work. The persons selected should represent all the constituent groups that will be involved in implementing the plan, including district administrators for curriculum, as well as technology, site administrators, teachers, library media teachers, classified staff, **parents, students, community members and business representatives**. The choice of representatives should be based on the individual's knowledge of technology and/or the standards-based curriculum, and their interest and availability to dedicate time to detailed research and planning. Additionally, since the buy-in of current non-technology users is also important to successful implementation, their perspective needs to be considered, either by representation on the team or through regular input into the plan.

Include Representatives from the District and the School Site Levels

Given the nature of the school district planning, some information gathering (technology inventories) and decision-making (delivery of curriculum) occur at the school site, rather than the district-level. This suggests that a two tier planning process that designates certain planning decisions to be made at each individual site, rather than the district level may create the most workable plan. At the very least, it encourages the inclusion of both district level and site level administrators on the planning team. Remember, after the plan is written, the district will want to implement the plan, and successful implementation is more likely if the school sites have bought into the plan.

Obtain the Support of the Superintendent and Governing Board

The support of the superintendent and governing board is so vital to the successful implementation of the plan that they should have representatives on the team. To optimize the potential for success, the team itself should be appointed by the governing board along with a budget to support the team, and a schedule for reporting the team's work to the board. Depending on the size and expertise of the planning group, the budget might need to include funds to contract for additional support to complete some of the planning tasks, such as needs assessments and network design.

Choose the Size and Structure of the Team that Best Meets your District's Needs

The structure of the team will vary based on the size of the team and the resources provided to each team member. Generally, the planning team size will depend on the size of the school district, how it is organized and the number of outside partners available to the district. If a large team is appointed, it may be most practical to break into working groups with an agreed upon method of regular communication to share information between the groups. Another model is to appoint a large committee representing all the constituent groups to review and respond to a smaller working group of eight to ten people.

Involve the Community, Business, Parents, and Students in all Aspects of the Plan and Implementation

Input from the **community, parents and students** is vital if a plan is going to succeed. For this reason, many planning guides dedicate an entire component to involving parents and the community. This Guide does not separate parent and community involvement in a separate component because parent, community and student involvement should be included within each of the five components. To have one component dedicated to parent, community and student involvement gives the erroneous impression to the planning team that these stakeholders do not need to be considered when formulating the other subject components. For that reason parent, community and student involvement is included in each component in this Guide.

Establish a Common Base of Knowledge Among Team Members (*Commissioners, should we drop this to shorten the Guide?)*

The planning team may include individuals who do not typically work with one another. An important first step will be to give each team member a working knowledge of the other team members' areas of expertise so they have a common base of information. The jargon of each group will have to be shared so they can communicate. For example, technology support staff may need an explanation of content standards while teachers on the team may need an overview of routers, hubs, and switches. Thus, the district's first step in technology planning may be this cross-pollination of experts on the staff.

D. What are the Necessary Steps in Planning?

(Commissioners—consider dropping this section to shorten Guide)

The five components (Curriculum; Professional Development; Infrastructure, Hardware, Technical Support and Software; Funding and Budget; and Monitoring and Evaluation) cover all the essential areas that should be included in an education technology plan, especially when applying for federal E-rate discounts. The five components should be thought of as subjects to be covered and within each subject there are planning steps to ensure that the plan is complete. Below is a brief discussion of those steps. These steps are also repeated with more specificity under each component in Section III.

1. Determine what you want to Accomplish (Vision)

As educators, we all have the goal of improving student achievement and preparing our students for life and the workplace. In developing an education technology plan, we should ask ourselves how do we use technology to assist in achieving this goal?

The education technology planning team needs to examine both the current district efforts to help students meet the **academic content standards** and the vision statements included in the school district and/or individual site comprehensive school improvement plans. The team should next examine the many uses of technology and develop a vision of how technology can support the school district's ongoing efforts and long-range vision for helping students meet **the academic content standards**.

When determining the district's vision for enriching the standards based curriculum through technology, consider, but don't be limited to, some of the uses listed below.

- Individualized instruction with detailed monitoring of students' progress to assist teachers in developing individualized learning plans for students in specific subjects
- Activities designed to permit teamwork, allowing students to engage in joint projects with their classmates and with students from other states and regions
- Hands-on practice, more time, more content, more problem-solving, and more individualized planning
- School-to-home communication (multilingual school or class web pages and e-mail)
- Student and parent access to school learning resources at home and in multiple languages
- Internet research opportunities and information literacy skills development
- The library's learning resources accessible electronically throughout the school
- Practicing communication skills, and perhaps even a foreign language, through e-mail pen pals
- Video conferencing with experts in their field
- Virtual field trips to NASA, the Smithsonian, the Louvre, etc.
- Distance learning for classes that cannot be economically offered by the school (too few students in the class)
- On demand, anytime staff development for teachers, methodology and lesson plans
- Community access to school technology resources to increase adult literacy
- Electronic grade books
- Electronic attendance accounting and other student record keeping
- Instructional videos in a variety of languages

2. Where is the School District now in Relationship to what the District wants to Accomplish? (Needs Assessment)

There are various tools and methods of assessing the current status of the district's infrastructure, hardware, software, technical support and staff competencies. Specific methods or resources to accomplish these specific needs assessment are covered under the individual plan components in the next section. Suffice it to say that it is equally as important to understand where the district is now, as it is to know where the district wants to go. What steps are taken depend upon not only where one is going, but also where one started.

3. What Steps Need to be Taken in Order to get from where the District is to where it wants to be? (Implementation)

What follows in Section II, Plan Components, is a more detailed discussion of what steps need to be taken to develop each of the above components of an education technology plan and implementation of those components. Generally speaking, implementation requires well thought out timelines that coordinate all of the individual steps and benchmarks in each component. A particular lesson plan included in the Curriculum Component cannot occur unless the requisite equipment has been purchased and installed and the necessary training has occurred.

While each component includes the implementation steps necessary to accomplish that part of the plan, it will also be necessary to have a critical path analysis across all of the components to successfully complete the plan. If the practical constraints of the available funding are carefully spelled out and tied to the components requiring funding, implementation is more likely to succeed.

4. Reflect and Revise (Evaluation)

Planning is an ongoing process and should include predetermined review points at which time progress is gauged and the plan is revised based on new information. Because technology is changing rapidly an annual review process is recommended. Preferably the method and timing of the scheduled progress review would coincide with the district's budget process to ensure funding decisions were made with the latest information.

PLAN COMPONENTS

II. PLAN COMPONENTS

A. Curriculum Component

Technology Planning Needs to be Driven by Curriculum Needs

It is important that technology planning be guided by a collaborative vision of how technology can help students meet the **academic content standards** and bring about the desired learning outcomes identified by a school district and **its community** in the comprehensive improvement plan. Team members should first review curriculum goals and current student achievement data, and then determine how technology can be used to help students effectively reach curriculum goals. To utilize technology to address content standards, the plan must also provide students with a means of acquiring and refining technology and information literacy skills.

Plan to use Technology to Reduce Time Spent on Administrative Tasks--*allowing more time for instruction*

This component should also address the administrative uses of technology. Using technology to more efficiently complete record-keeping tasks allows more time to be spent on improving student achievement. Additionally, better maintained student records, that follow the student electronically, help the receiving teacher meet the new student's needs from the beginning rather than weeks later only after the teacher has had an opportunity to learn by observation what timely transmitted student records would have told the teacher from the first day. The plan could also address other ways in which technology could assist site and district administrators with data-driven decision-making.

Invest Time in Learning About the Possibilities--*visit other schools, nonprofit organizations and businesses*

It is critical to educate the planning team on "what is possible" in a technology-rich learning environment. In order to accomplish this objective, the planning team is encouraged to consider what types of technology are appropriate and useful not only for their current situation, but also the future. Therefore, it is highly recommended that before writing this component, school district leaders and the planning team communicate with their CTAP representative, search the Internet and visit other schools, **nonprofit organizations, and even businesses** to expand their ideas about how technology can be used to support standards-based learning and what methods or tools are used by teachers, library media teachers, and administrators to create effective learning environments with technology. Web-based and other resources on the integration of technology into the curriculum are included in section IV on page 47.

Include Benchmarks and Timelines to Describe how and when Chosen Strategies will be Implemented

To assist the planning team in generating this component a detailed list of Suggested Action Steps and Guiding Questions can be found beginning on page 23. The Suggested Action Steps identify the tasks that need to be accomplished to ensure a thorough and complete plan for integrating

technology into the curriculum. A table listing the Suggested Action Steps is also included on page 35 to assist the planning team in assigning responsibility and deadlines to complete the tasks. Guiding Questions are also included to help identify the issues to be considered under each Suggested Action Steps.

To turn planning into positive change to improve student achievement, the proposed strategies in this component need to be translated into benchmarks and timelines. It is especially important for the Curriculum Component to have a clear timeline and benchmarks because so many other parts of the plan flow from the decisions made in this part of the plan. A template to develop a timeline for implementation is provided on page 42.

B. Professional Development Component

Professional Development is more Important than Electrical Outlets when it Comes to Using Technology

In order to effectively use telecommunications and technology to improve education, classroom teachers, library media teachers, administrators, and technical support staff should themselves know how to use technology and to focus this use on promoting improved student achievement. Businesses consider such training part of the "Total Cost of Ownership", because without the training, the equipment is as useless as it would be without electricity. A rule of thumb in the business community is that the resources committed to staff development should be approximately the same as the resources committed to the acquisition of new equipment.

CTAP^2 is an on-line, self-assessment tool that allows educators to determine their level of technology proficiency – Introductory, Intermediate, or Proficient. The self-assessment is based upon rubrics aligned with the California Commission on Teacher Credentialing (CTC) "Factors to Consider", which are the technology standards for a California K-12 teaching credential. Based on the results of the assessment, educators can view and select the professional development opportunities that will advance their proficiency level. CTAP^2 may be accessed at http://ctap2.iassessment.org/

Technology Training is Best Integrated into Subject Matter Programs and Embedded in the Workplace

The plan needs to address how professional development will be delivered and allocate time for this important activity. Appendix B includes *Elements of High Quality Professional Development* that should assist the planning team in making decisions about what type of professional development to plan. Because of the reduced number of staff development days, it may be difficult to find the time for professional development dedicated solely to education technology. This impediment can be decreased, and professional development enhanced, by integrating technology into existing content-specific professional development rather than offering separate training on technology alone.

The best staff development is that which occurs closest to the individual. Teachers learn best by studying, doing, and reflecting; by collaborating with other teachers, by looking closely at students and their work, and by sharing what they see. This type of learning is best facilitated by being embedded in the workplace. The plan should therefore consider providing time for collaboration during the workday and developing on-site "Technology Ambassadors" to assist teachers and administrators on specific technology projects.

Timing is Important when it Comes to Effective Professional Development

Just-in-time training appears to work especially well for technology in the educational setting. Human resources already in place, such as the library media teacher, technology coordinators, or technology teachers on special assignment, can serve to deliver this technology training when the teacher and site administrator need it.

The timing of equipment purchases is also important to effective professional development. If the acquisition of equipment gets too far in front of the teachers' and administrators' abilities to use it, "new" equipment may become obsolete before it is ever used in a classroom. This component of the plan needs to support the goals and the timeline for implementing the technology strategies and methodologies under the Curriculum Component, as well as align with the timeline for equipment acquisition in the Infrastructure, Hardware, Technical Support, and Software Component.

Include Benchmarks and Timelines to Describe how and when Chosen Strategies will be Implemented

To assist the planning team in generating this component a detailed list of Suggested Action Steps and Guiding Questions can be found beginning on page 23. The Suggested Action Steps identify the tasks that need to be accomplished to ensure a thorough and complete plan for providing the identified professional development. A table listing the Suggested Action Steps is also included on page 35 to assist the planning team in assigning responsibility and deadlines to complete the tasks. Guiding Questions are also included to help identify the issues to be considered under each Suggested Action Steps.

To turn planning into positive change to improve student achievement, the proposed strategies in this component need to be translated into benchmarks and timelines. The Professional Development Component benchmarks and timelines must provide for the necessary professional development in a timeframe to support the Curriculum Component benchmarks and timeline, while recognizing the constraints undoubtedly created by the Infrastructure and Hardware Component timeline. A template to develop a timeline for implementation is provided on page 42.

C. Infrastructure, Hardware, Technical Support and Software Component

Generate a List of what Technology the School District Needs to have Available to Support the Curriculum and Professional Development Components

Once the Curriculum Component and Professional Development Component have laid out the vision, goals, and strategies for utilizing technology to assist students to meet **content standards**, the next job is to identify what technology and physical plant modifications are needed to accomplish the Curriculum and Professional Development Components. Therefore, this component involves assessing the current status of infrastructure (including electrical capacity of the building), hardware, software (including on-line learning resources) and technical support in the district, and planning for how those resources can be recycled, repurposed or supplemented to create the learning environment envisioned in the Curriculum Component. Primarily this component entails generating a list of what equipment, physical plant modifications, electronic learning resources and technical support is needed and the timeline for acquisition.

Availability and Ease of Access to the Technology

Not only must the planning team determine how the district will use technology, but it must also decide where it will use technology. Research of academic gains attributable to technology point to computers in the classroom, easily accessible to students and teachers, as having the greatest impact. But will each school also have labs? Are labs all the district can afford for the first few years as it begins its acquisition of technology? These and other questions must be answered both in the short and the long run in order to make decisions about network capabilities and number of computers purchased.

Another location issue is after school access to computers and the school network. Will teachers, parents and students be able to complete assignments either by accessing school computer labs after school, or community computer labs, or computers and/or thin clients that utilize the school network from non-school locations, like home.

Seek Out Expert Advice on what Technology will Serve the School District Needs the Best and for the Lowest Total Cost Over Time

Many technologies may look like they get the job done as outlined in the Curriculum Component, but they don't function in the same manner. For example if the Curriculum Component identifies a need for Internet access for researching and word processing capabilities for students to compile and compose their research, all that is technically required are stand-alone computers with modems and telephone lines. But this ignores the issues of speed of Internet access, student access to the hardware, as well as their own work (does each student carry their work on their own floppy disk?), security, and technical support for individual machines.

The California Technology Assistance Project (CTAP) has people and resources available to assist your district and the planning team to not only develop, but also implement, the school district education technology plan. To contact the CTAP staff that provides regional technology services to your district please visit the California Department of Education Web site at www.cde.ca.gov/edtech/

Consider Security for Both the Equipment and the Data from the Beginning

School districts have many responsibilities when building a technology infrastructure, including devising acceptable use policies and security procedures. While most schools report positive experiences with technology, it is still important for districts to have rules specifying the consequences of misuses. Deciding how your district would respond to technology infractions, such as altered or deleted files, disabled or missing workstations, misconfigured networks, and misuses of the Internet, is an important task for a technology implementation team.

New security issues face school district personnel when building a technology infrastructure. There are two types of security issues: physical security and electronic security. Physical security measures include upgrading the locks throughout the school building, installing electronic monitoring devices where technology is stored, and electronically tagging all equipment for easy identification if stolen. Electronic security measures include designing a hierarchical access structure for the network, firewalls, filters, installing monitoring software to search and report viruses, thefts, and vandals, and installing backup and recovery tools such as a tape drive that can record and retrieve all networked files and applications.

Long-Term Implications Need to be Considered

Planning needs to be very comprehensive, and the plan needs to be written after consideration of long-term implications of the choices made. The following recommendations will help districts with this planning:

- Districts should plan to purchase hardware that is powerful enough to meet future needs, including the need for data, voice, and video.
- Districts should plan to purchase hardware that meets their needs and has the lowest cost of ownership over the long term. This may lead to networked thin clients and/or networked computers.
- Districts should plan for adequate connectivity and network capacity. Demands for bandwidth increase as more connectivity is added to schools and as technologies, such as video streaming that require high-capacity connectivity, become more available. Districts should consider these increased demands as they plan for the type of connectivity (wireless, hard wired or a combination) provided to individual schools and to classrooms.

The Digital California Project is a multi-million dollar effort designed to build the necessary network infrastructure needed to prepare California's schools to take advantage of tomorrow's advances in network technology. In essence, California is developing an advanced-services network to serve the entire K-20 education and research community.

Information about the Digital California Program may be found at http://www.cenic.org/DCP.html

- The District should plan for obsolescence. The plan should include an equipment replacement schedule that recognizes the useful life of the technology and creatively finds new purposes for old equipment or recycles the old equipment within the district or in the community.
- The plan should result in a student information system that is consistent with local and state data collection efforts. The technology plan should promote a system that results in student data being accessible to teachers and administrators for analysis.
- Districts should plan for adequate technical support for hardware, software, and for local and wide area networks. The technology plan should address how teachers access technical support, the expected response time, the FTE needed for technical support, and if and how students will be involved in technical support. If technical support will be provided in-house, districts are strongly encouraged to establish a maximum number of machines that each technical support person can maintain and ensure that as the amount of technology expands, the level of technical support is maintained according to the pre-determined ratio. For example, if a district with a computer to technical support FTE of 50:1 buys 25 new computers, the district will need to identify support for another half time technical support position.

Information needed to make the decisions in this area change daily. It may be difficult for districts to keep current with the latest technology. CTAP is available to provide assistance. In addition, some districts find it helpful to do this work in conjunction with an outside consultant. Although infrastructure experts can provide invaluable assistance, if an outside consultant is used, be aware of the inherent bias towards a particular brand or product.

Include Benchmarks and Timelines to Describe How and When Chosen Strategies Will Be Implemented

To assist the planning team in generating this component a detailed list of Suggested Action Steps and Guiding Questions can be found beginning on page 23. The Suggested Action Steps identify the tasks that need to be accomplished to ensure a thorough and complete plan for providing the identified infrastructure, hardware, technical support, and software needs. A table listing the Suggested Action Steps is also included on page 35 to assist the planning team in assigning responsibility and deadlines to

complete the tasks. Guiding Questions are also included to help identify the issues to be considered under each Suggested Action Steps.

To turn planning into action, the proposed strategies in this component need to be translated into benchmarks and timelines. This Component's benchmarks and timelines must provide for the necessary infrastructure, hardware, technical support, and software in time for the teachers, students and administrators to use these resources to implement the Curriculum Component benchmarks and timeline. A template to develop a timeline for implementation is provided on page 42.

D. Funding and Budget Component

After generating a list and timeline in the previous component of what equipment, physical plant modifications, electronic learning resources and technical support needs to be obtained, it is time to develop a budget and find the resources to obtain these items, and the training to implement the Curriculum and Professional Development Components. In funding and budgeting, it is important to differentiate between one time and ongoing costs. This is important in order to obtain the buy-in of the administration and governing board to support the ongoing costs of maintaining and updating the initial system and training. It can also be useful in obtaining donations, since most donations tend to be of a one-time, rather than ongoing, nature. The budget should consider hardware and software purchasing agreements within the district, those provided through Department of General Services, and those provide by statewide services such as the California Statewide Master Agreements for Resources in Technology (C-SMART).

Hopefully, the planning process itself will increase the resources available. From the outset, the district administration and governing board should consider dedicating some amount of ongoing district resources to implement the plan. This act alone will send a powerful message as to the importance of this plan and its implementation. Additionally, this plan is structured to meet the planning needs of various state and federal grant programs. The California Department of Education Web site should be reviewed on a regular basis to identify the funding for which the district, or schools within the district, might qualify. Finally, a plan and timeline for the acquisition of specifically identified equipment, hardware, software and technical support will make it easier to approach the private sector for contributions of discrete pieces of equipment, hardware or software, or even the donation of time for technical support.

Finally, while the entire plan needs to be updated on a regular basis, the Funding and Budget Component should be kept current so that at any given time the district will know what the next piece of equipment to be purchased is with the next dollar that comes into the district.

Suggested Action Steps and Guiding Questions that will assist the planning team in generating this component of the school district education technology plan begin on page 23.

E. Monitoring and Evaluation Component

Monitor the Implementation Steps and Timelines --*is the school district doing what it said it would do?*

The monitoring of how the district has progressed in comparison to its original timelines is an important tool for managing, updating, and continually improving the plan. Monitoring the implementation of the plan is also important in evaluating the effect, because it is important to know if all or only some part of the plan has been implemented before it is possible to attribute some effect to its implementation. Both the monitoring and the evaluation can help justify the precious expenditures and sacrifices made in the past and serve to maintain or even increase funds spent in the future to support technology.

Evaluate if the Steps Taken have had the Intended Effect-*did technology make a difference?*

As the district began the planning process, it focused on curriculum and using technology to assist all students to master the State Content **Standards** and each school to meet its API target. Through the evaluation, the district discovers whether or not their efforts produced results and increased student achievement. If the intended results did not materialize, the evaluation will assist in determining what "next steps" need to be taken to achieve the desired result. For example if the schools with computers in the classrooms showed increased test scores, but the schools with only computer labs did not, the district now knows that the number of computers needs to be increased so that every school has a sufficient number in each classroom.

The evaluation can be performed by an in-house team. However, if an independent evaluator performs the evaluation, it may alleviate any concerns about "blind spots" or inherent bias regarding the accomplishment of the district's technology goals. Additionally, **Institutions of Higher Education** can be a valuable resource when looking for partners to help monitor and evaluate the effect of particular school reforms, such as the use of educational technology.

Remember also that this education technology plan is a subset of an overall school improvement plan. Any evaluation of the effect of technology on student achievement should be conducted in collaboration with the overall evaluation of the school improvement effort.

Suggested Action Steps and Guiding Questions that will assist the planning team in generating this component of the school district education technology plan begin on page 23.

Suggested Action Steps
And
Guiding Questions

Suggested Action Steps and Guiding Questions

A. Curriculum Component

The Vision

- **Review the district's curricular goals as spelled out in various district and site comprehensive planning documents, and determine how technology can be used to help meet these goals**
    - What are the district's curriculum goals and what are the district's plans to assist students to meet **standards** and pass the high school exit exam?
    - Are targets for improvement in student achievement being met?
    - How do Local Improvement Plans, Immediate Intervention Plans, site plans, self-studies, program quality reviews (PQRs), accreditations (e.g., Western Association of Schools and Colleges) link technology use to school improvement efforts? Or, how can technology be used to support these plans?
    - How can technology be used to address any academic weaknesses and foster improved student and teacher performance?
    - What are the **community's expectations** in the level of technology use in the school district?

The Needs Assessment

- **Assess the district's current use of hardware and software to support teaching and learning**
    - How is technology currently being used in classrooms at each grade level?
    - How is technology currently being used by teachers and administrators to promote effective classroom and school management (for example, is attendance data collected electronically, or can student records be transferred electronically from one school to another when a student moves?)?
    - Is technology currently available to all students? Are all student groups, including special education students, making equal use of the available technology? If not, why?
    - Is technology currently available to students after school hours? Do students have access to technology in their **homes, in community libraries and/or community centers**?
    - How is technology currently being used to foster improved two-way communication between **home and school**?
    - Does the **community, including parents**, need adult education opportunities in the use of technology?

The Implementation

- **Develop clear goals and a specific implementation plan for using telecommunications and technology to improve teaching and learning**
    - For each grade level and each content area, how can technology be used to help students meet or exceed **grade-level standards**?
    - How will technology be used to create learning experiences that would not be possible without technology?
    - How will distance learning, including on-line Advance Placement Courses, expand content offerings and/or access to K-12 classes?
    - What are the grade-level specific short-term (one-year) goals for using technology to help students reach grade-level **standards**? What are the long-term goals (three to five years)?
    - How will technology be used to assist students to pass the high school exit exam?
    - How will elementary, middle and high schools work together to ensure that technology supports student needs at all levels?
    - When will each of the proposed strategies or methodologies utilizing technology be employed?

- **Outline how and when students will acquire technology skills needed to succeed in the classroom and the workplace**
    - Does the district have established technology proficiencies by grade level?
        - If so, are teaching these proficiencies woven into the academic curriculum rather than in stand-alone technology lessons?
        - If not, how will the plan address both content and technology proficiencies?
    - How will elementary, middle and high schools work together to ensure that students obtain and retain the identified technology skills?
    - Will graduation or matriculation requirements include a technology component? If so, how will the plan address helping all students meet these requirements?
    - Have experts, non-profit organizations and businesses in the community been solicited for input and support in using the latest technology and preparing students for the workforce?

- **Include programs and methods of utilizing technology which ensure appropriate access to all students**
    - How can technology be used to extend the school day for students and to make learning resources **available after school hours**?
    - What steps can the district take to ensure equity of access?
    - How can technology be used to help support **students with special needs**?
    - How do the plans for curriculum integration relate to policies regarding Internet use (acceptable use policies)? Is there a need to update these policies?

- **Explore ways to utilize technology to make student record keeping and assessment more efficient and supportive of teachers' efforts to meet individual student academic needs**
    - How will technology assist with student assessment?
    - How will technology be used as a diagnostic tool?
    - How will technology be used to track a student's progress towards meeting the content standards and passing the high school exit exam?
    - How can teachers and principals save time by using technology for administrative tasks, such as attendance and grading?
    - How will data be made more easily available to teachers and principals so that they can make informed decisions?

- **Utilize technology to make teachers and administrators more accessible to parents.**
    - Have parents been consulted to determine ways in which technology may be used to foster better communications between home and school?
    - Have parents been made aware of the benefits of educational technology and how they might assist their student and/or their school in the use of technology?

- **Compile benchmarks and a timeline for implementing planned strategies and activities.**

The Monitoring and Evaluation

- **Develop a process to monitor whether the strategies and methodologies utilizing technology are being implemented**
    - How often and who will monitor the progress of plan implementation against the benchmarks and timeline?
    - How often will the status of plan implementation be reported to the District Superintendent? To the local governing board?
    - What steps will be taken if plan implementation is not on target, either because it is behind or ahead of schedule?

- **Develop a process to evaluate if implementation of the plan has a positive impact on student achievement**
    - How will the district know if implementation of this plan has had a positive impact on teaching and learning?
    - How will the district know if implementation of this plan has had a positive impact on classroom and school management?
    - What indicators of success will be used? Passage on the high school exit exam? Number of students successfully meeting **grade-level standards** and advancing to next grade? Reduced dropout rate? Increased attendance?

B. Professional Development Component

The Needs Assessment

- **Survey teachers' and administrators' current technology skills**
  - Are teachers and administrators personally proficient in the use of technology?
  - Do teachers and administrators know how to utilize technology in a **standards-based curriculum**?
  - Do teachers have the classroom management strategies to work with the number of computers actually available in the classrooms?

The Implementation

- **Determine priorities for providing professional development opportunities**
  - Based on the current level of teacher and administrator competencies and the priorities for introducing new technology into the curriculum outlined in the Curriculum Component of this plan, what is the first professional development that is needed? What is the second type of professional development, and so on?
  - What is the time frame in which the professional development needs to be provided?

- **Research existing professional development opportunities**
  - What professional development does the regional CTAP provide? Is CTAP available to customize training to meet the district's needs?
  - What training do **institutions of higher education** (local and through distance learning) provide?
  - What professional development is available through Statewide Education Technology Services such as Technology Information Center for Administrative Leadership (TICAL)?
  - What professional development opportunities are available on-line or through software?
  - Do these existing sources of professional development focus on using technology to improve teaching and learning in a **standards-based curriculum**?

- **Outline a process by which teachers and administrators will have an opportunity to participate in the planning of their own professional learning**

- **Outline a schedule of high quality professional development**
  - Does the professional development meet the needs of the teachers and administrators as identified through the survey and established priorities? Does it focus on using technology to improve teaching and learning in a **standards-based curriculum**?
  - Do the curriculum coordinator, professional development coordinator and technology coordinator all share responsibility for integrating school improvement and technology initiatives?
  - Is the professional development embedded in the workplace to promote practicing new skills and collaboratively discussing experiences?
  - Is the professional development accessible to those who need to participate?
  - Do those participating in professional development have access to the technology tools they need to apply new skills immediately following the training? How will professional development plans be coordinated with purchasing plans to facilitate access?

- Is just-in-time support available as teachers and administrators try to implement new skills?
- Does the professional development help **teachers use technology to increase their knowledge of the subject matter they teach and/or advance their own professional learning?**
- How does the professional development measure against the Elements of High Quality Professional Development in Appendix B?

- **Develop an estimate of the annual cost to provide the scheduled professional development outlined in the plan. Identify possible sources of funding to cover the estimated costs and include this information in the Funding and Budget Component**
  - Can some of this professional development be provided free of charge by CTAP?
  - What other sources of professional development does CTAP recommend?
  - What funding opportunities are available from federal, state, and local sources?
  - Can the training be provided at a lesser expense and more effectively by integrating the technology training into existing professional development on content or instruction techniques?

The Monitoring and Evaluation

- **Develop a method to assess the effectiveness of the professional development provided and include this information in the Monitoring and Evaluation Component**
  - Were all aspects of the professional development program implemented? If not, why not?
  - Did teachers and administrators use what was taught? Has the professional development resulted in change over time?
  - If change has occurred, did that change have a positive effect on student learning?
  - Did teachers and administrators feel supported after the initial training when questions arose or new situations presented themselves?

C. Action Steps and Guiding Questions for Infrastructure, Hardware, Technical Support, and Software Component

The Needs Assessment

- **Determine the technology hardware, materials and resources needed by teachers, students, and administrators to support the activities in Curriculum Component.**

Hardware:

- How many computers are necessary to implement the Curriculum Component for students and staff? Where will the machines be placed to most effectively support the Curriculum Component?
- What are the minimum specifications of the equipment to be purchased?
- What is the total cost of ownership of this equipment?
- Is **specialized equipment needed to meet student needs**?
- **Can assistive technologies be beneficially used by student populations not traditionally served by this equipment**?
- Do any of the sites require an upgrade to their electrical systems before additional hardware can be used?
- How will the plan ensure that **hardware is accessible to all students**? How does the plan promote **accessibility to hardware after school hours**?

Electronic Learning Resources:

- Will the district adopt software standards and make certain productivity tools and/or courseware available to all teachers and students?
- How will electronic learning resources be selected for each grade level to support the **academic content standards**? How will the services of the California Learning Resource Network (CLRN) be utilized in this effort?
- Which of the needed resources are available online?
- What resources are needed for management, student record keeping and planning?
- Will the electronic learning resources that reside in one location, such as the **school library**, be made available throughout the school and/or **community** via a network and/or the Internet?

Networking and Telecommunications Infrastructure:

- Will the plan include schoolwide networks? What is the best configuration for these networks? What will it take to implement these designs?
- What is the target bandwidth for sites and how will this be obtained?
- Will there be a district WAN? What is the best configuration for the network? What will it take to implement?
- Could a community WAN be created which would **connect community centers, libraries, museums, schools, institutions of higher education and private homes**?
- What security is necessary to protect confidential data and to maintain the integrity of the system? Have firewalls and encryption been considered?
- Will filtering software be used to prevent staff or student access to inappropriate Internet sites?
- Will students and teachers be able to access their work from any location in the school or from home?
- Will **parents and community members** be able to access school information from home? Will parents be able to access information about individual students?

Physical Plant:

- Is there sufficient electrical capacity to the necessary parts of the schools and outlets in the classrooms to support the hardware and infrastructure planned for each site? Has the electrical system been evaluated and any necessary upgrades planned?
- Are the storage rooms and classrooms in which infrastructure, hardware and electronic resources reside secure or do they require modification to become secure?
- Is the planned layout of hardware and ancillary wiring configured in a way that is safe for student to move about and not create a fire hazard?
- Have building inspectors and the fire marshal been consulted to ensure code compliance and safety?
- Is the access to labs that will be used in non-school hours by students and/or the **community safe and secure so that school buildings and prope rty, and user safety, are protected?**
- Is there a process in place to screen contractors, such as checking their references, prior to hiring them to do the work?

Technical Support:

- How will technical support needs be addressed to ensure that the hardware, peripherals such as printers, local area networks, and wide area networks function adequately and that problems are addressed within an acceptable response time?
- What is the target ratio of hardware to technical support personnel?
- How will questions regarding software be handled so as to provide support to teachers within an acceptable response time?
- If the plan includes involving students in technical support, how will the plan be implemented so as to encourage all students to participate and be trained?

- **Determine what hardware, Internet access, electronic learning resources and technical support already exists in the district that could be used to support the Curriculum Component and Professional Development Component of the plan.**
  - Hardware: Collect a current inventory of all technology equipment at each site (Refer to the appendix for a sample form).
    - Can existing equipment be repurposed to meet certain needs identified in the plan?
    - Can equipment that does not meet school site needs in the plan be repurposed to support student home access to the school network and/or Internet?
  - Electronic Learning Resources: (For each site)
    - For each grade level, what electronic learning resources are currently being used for instruction and/or student assessment?
    - How frequently is each type of technology resource used?
    - Is each resource used in the classroom, in the library, or in a computer lab?
  - Networking and Telecommunications Infrastructure: (For each site)
    - What is the capacity and configuration of networks in the district? Are any areas not connected to the network?
    - Is the current ISP able to meet needs?
    - How many telephone lines are there to the site and what is the capability of the phone system (i.e. is there voice mail)?
    - **Do all staff have email accounts? Do students have access to email**?

- Technical support: (For each site)
  - Who provides technical support and what is the response time?
  - Is this level of technical support meeting the needs of teachers and administrators?

- **Seek advice and support from experts.**
  - Has the CTAP regional representative been contacted for guidance?
  - Have other districts been contacted regarding their hardware, software, or networking standards that could be utilized to implement the plan?
  - Are there nearby **industry members and/or non-profit organizations** that may be able to contribute the latest technical information and/or equipment?
  - How can the expertise of **parents and community groups** be solicited and included in the development of this component?

The Implementation

- **Develop a timeline for obtaining the hardware, infrastructure, learning resources and technical support required to support the other components of the plan.**
  - What is the order and timing of purchases over the 3-5 year period necessary to support the timelines in the Curriculum and Professional Development Components? Can this acquisition timeline be accomplished with the estimated available resources in the Funding and Budget Component? Are there ways that the Curriculum and Professional Development Components can be phased in to match the resources available as identified in the Funding and Budget Component?
  - Will the new technology be delivered (installed and tested) near the time of teacher professional development?
  - Can the summer months be used to install equipment or software as well as provide training?
  - Does the timeline take into consideration other overlapping efforts, such as building modernization or instructional material purchases, which could impact the cost and timing of the efforts?

The Monitoring and Evaluation

- **Update and revise hardware, Internet access, electronic learning resources and level of technical support needed on a regular basis.**
  - Does the district have an inventory system or does one need to be developed to track the type and age of hardware?
  - How often and who will be responsible for updating the listed need?

D. Funding and Budget Component

The Implementation

- **Research and consider options for procuring resources**
    - Have any hardware and software purchasing agreements within the district been considered?
    - Have C-SMART and Department of General Services discounts/purchasing options been considered?
    - Are there nearby **industry experts or non-profit organizations** that may be willing to partner in the support of the districts technology efforts?
    - Have the potential purchases been advertised to **parents and the community**? There may be someone or an organization willing to donate services, money, or product.
    - Could leasing equipment minimize costs and/or help resolve support issues?

- **Identify all costs associated with implementing each component of the plan.**
    - Develop annual budgets for the term of the plan (3-5 years)
    - Within each years budget differentiate one-time costs from ongoing costs?

- **Identify established and potential funding sources, present and future**
    - Has the amount of district funding available for technology been obtained from the district's budget office?
    - Are there federal, state or local programs that could provide funding for technology?
    - Would allocating resources for grant writing proposals be a viable option?

- **Provide for ongoing technical support**
    - Could extended warranties from the seller or contracted technical support provide the needed maintenance or is it more cost effective for the district to employ staff for the required level of technical support?
    - Is there backup equipment available should key components break down?
    - Have other options for support been considered, such as student-based, or parent-led technology training and support efforts?

- **Plan for obsolescence of equipment**
    - What replacement cycle has been built into the plan? Is funding set aside for this replacement? Is it adequate for the length of the replacement cycle?
    - Have feeder schools in the district or low-income students been considered as recipients of older equipment?

The Monitoring and Evaluation

- **Establish a feedback loop to monitor and improve progress**
    - Has a process for monitoring plan implementation of modification to the physical plant, acquisition of equipment and updating of the budget been agreed upon? Has the person who will be responsible for administering this monitoring process been identified?
    - Have regular meetings been scheduled with the superintendent and/or district governing board to (1) update them on progress of obtaining funds to support implementation of the plan, (2) explain difficulties, and (3) offer revisions to the plan in order to resolve the problems?

E. Monitoring and Evaluation Component

- **Review the implementation monitoring process included under each component of the plan. Minimize costs in time and money by reducing any overlap.**

- **Research and consider monitoring and evaluation tools provided at little or no cost to the district.**
  - Has the CTAP regional representative been contacted for guidance and assistance?
  - Have **Institutions of Higher Education** with expertise in education technology been contacted for guidance and assistance?
  - Are there nearby members of industry that may be willing to partner in evaluation process?
  - Are there resources from government, **nonprofit agencies, and/or industry** that would be useful?
  - Have other district technology coordinators been contacted regarding recommendations for evaluation design and/or instruments?

- **Define the evaluation process that will be used to measure the extent to which technology is being used to improve teaching and learning as well as classroom and school management, and the impact this use has on student achievement**
  - How will the level of technology use be determined over time? What data will be collected? What are the data collection intervals?
  - How will data on student achievement, including both teacher-collected data and data from standardized assessments, be used to monitor progress toward meeting goals?
  - Have teachers and site administrators been consulted in designing the data collection method?
  - Is there an open line of communication for teachers, parents, and other stakeholders to provide input in the evaluation process?
  - Who will do the evaluation?

- **Monitor plan implementation and its effect, realizing that infusing technology into schools' daily life is a s-l-o-w and evolving process.**
  - Who will analyze the evaluation results and how will success/non-success be determined? Consider the survey results, correlate with test scores (STAR, API, etc.) over time. Anecdotal evidence in the form of success stories may be powerful at times, but it is not sufficient.
  - What conclusions can be drawn as to the effectiveness of the use of technology in the district?
  - Who will continue to monitor the plan?
  - What will be the frequency of reporting evaluation results? Will it be done at least on a yearly basis?
  - If necessary, can mid-course corrections be made as a result of the monitoring effort or the evaluation?

- **Evaluate and publicize results in order to report on progress, share success stories, or solicit assistance.**
  - How will the results be shared with the stakeholders?
  - How will technology success stories been documented and publicized?

SCHOOL DISTRICT

TECHNOLOGY PLANNING

TOOLKIT

Suggested Action Steps

CURRICULUM COMPONENT

Task	Person Responsible	Target Completion Date
Review the district's curricular goals and determine how technology can be used to help meet these goals.		
Assess the district's current use of hardware and software to support teaching and learning.		
Develop clear goals and a specific implementation plan for using telecommunications and technology to improve teaching and learning.		
Outline how and when students will acquire technology skills needed to succeed in the classroom and the workplace.		
Include programs and methods of utilizing technology which ensure appropriate access to all students.		
Utilize technology to make student record keeping and assessment more efficient and supportive of teachers' efforts to meet individual student academic needs.		
Utilize technology to make teachers and administrators more accessible to parents.		
Develop a process to monitor whether the strategies and methodologies utilizing technology are being implemented.		
Develop a process to evaluate if implementation of the plan has a positive impact on student achievement.		

PROFESSIONAL DEVELOPMENT COMPONENT

Task	Person Responsible	Target Completion Date
Survey teachers' and administrators' current technology skills.		
Determine priorities for providing professional development opportunities.		
Research existing professional development opportunities.		
Outline a process by which teachers and administrators will have an opportunity to participate in the planning of their own professional learning.		
Outline a schedule of high quality professional development.		
Develop an estimate of the annual cost to provide the scheduled professional development outlined in the plan. Identify possible sources of funding to cover the estimated costs and include this information in the funding and Budget Component.		
Develop a method to assess the effectiveness of the professional development provided and include this information in the Monitoring and Evaluation component.		

INFRASTRUCTURE, HARDWARE, TECHNICAL SUPPORT AND SOFTWARE COMPONENT

Task	Person Responsible	Target Completion Date
Determine the technology hardware, materials and resources needed by teachers, students, and administrators to support the activities in Curriculum Components.		
Determine what hardware, Internet access, electronic learning resources and technical support already exists in the district that could be used to support the Curriculum Component and Professional Development Component of the plan.		
Seek advice and support from experts.		
Develop a timeline for obtaining the hardware, infrastructure, learning resources and technical support required to support the other components of the plan.		
Update and revise hardware, Internet access, electronic learning resources and level of technical support needed on a regular basis.		

FUNDING AND BUDGET COMPONENT

Task	Person Responsible	Target Completion Date
Research and consider options for procuring resources.		
Identify all costs associated with implementing each component of the plan.		
Identify established and potential funding sources.		
Provide for ongoing technical support.		
Plan for obsolescence of equipment.		
Establish a feedback loop to monitor and improve progress.		

MONITORING AND EVALUATION COMPONENT

Task	Person Responsible	Target Completion Date
Review the implementation monitoring process included under each component. Minimize costs by reducing any overlap.		
Research and consider monitoring and evaluation tools.		
Define the evaluation process that will be used to measure the extent to which technology is being used to improve teaching and learning as well as classroom and school management, and the impact this use has on student achievement.		
Monitor plan implementation and its effect, realizing that infusing technology into schools' daily life is a s-l-o-w process.		
Evaluate and publicize results in order to report on progress, share success stories, or solicit assistance.		

School Site Technology Inventory
(An inventory should be completed for each school in the district.)

I. Computers

B. Existing Inventory

Include the **number and type of school-owned computers for each location listed below** in your school. Please include **laptop (L)** and **desktop (D)** computers, as well as **thin-client (TC)** units, in your count. **Use numbers NOT words such as"all" or "none".**

A Multimedia Computer is one that has or is connected directly or by network, to a CD-ROM drive and can take advantage of audio and video files stored there.

	In Classrooms			In Computer Labs			In Shared or Common Space (e.g., library)			In Administrative Offices		
WITH Internet Connections:	L	D	TC	L	D	TC	L	D	TC	L	D	TC
Multimedia Computers												
Non Multimedia Computers												
WITHOUT Internet Connections:	L	D	TC	L	D	TC	L	D	TC	L	D	TC
Multimedia Computers												
Non Multimedia Computers												

To be Upgraded or Acquired per the Plan

Of the existing inventory, indicate the number to be used as is, what will need to be upgraded, what will be acquired, and what will be retired when new/upgraded equipment is available.

	In Classrooms	In Computer Labs	In Shared or Common Space (e.g., library)	In Administrative Offices
Desktop Computers				
Use as is				
Upgrade				
To be acquired				
To be retired when new or upgraded equipment is available				
Laptops				
Use as is				
Upgrade				
To be acquired				
To be retired when new or upgraded equipment is available				
Thin Client				
Use as is				
Upgrade				
To be acquired				
To be retired when new or upgraded equipment is available				

II. Peripherals

Peripherals	*Current Number*	*Number Needed*
Digital Cameras		
Scanners/Digitizers		
Assistive/Adaptive Devices		
Printers		
VCR Units		
Video Cameras		
TV Monitors		
Graphing Calculator		
Computer Screen Projectors *(e.g., LCD)*		
Video Conferencing Units		

III. Site Networks and Connectivity

a. Total number of local area networks (LAN): _____

b. If the school site is connected to a permanent (non-dial-up) connection, who is the Internet Service Provider (ISP)?

County Office of Education _____ University of California/California State University _____
District Office _____ Commercial Provider _____

c. Classrooms connectivity

Total number of classrooms

(i) Connectivity in classrooms and administrative offices:

	No.of Classrooms	Average No. of Drops/Classroom	Number of Administrative Offices
Currently Connected to the Internet			
Need to be Connected to the Internet			
Currently connected to a LAN			
Need to be connected to a LAN			

d. Site's Internet access is via:

T-1 or greater _____
Fractional T-1 or better _____
Frame Relay _____
ISDN _____
Modem _____
Cable _____
ATM or SONET/OC3 _____
Wireless (not microwave) _____
Microwave _____
Other _____

IV. Site Telephone Systems

Number of lines _____

V. Site Libraries

Indicate the hours that the site library is open: _____

Partnerships

Complete the chart below to describe the role of partners in the design and implementation of the technology plan. If one or more type of partner will not be involved in the development of the plan, or the ongoing support of the project, state "No involvement from this partner" in the appropriate box below and then describe the steps taken to encourage their participation and why the group(s) did not participate.

Type of Partner	**Name and Contact Info. of Partner**	**Role in development of the Technology Plan**	**Role in supporting the project**
Parents			
Businesses			
Post-secondary Institutions			
Government agencies, including county offices of education and CTAP			
Community groups			

Project Management for Implementation of the Technology Plan

The leadership structure for implementing the Technology Plan is:

Individual(s) Responsible (Person(s) or Job Title(s))	**Responsibilities** *(samples, edit as needed)*	**Data Collection Time Estimate** (Hours per month or FTE)
	Overall management and coordination	
	Managing and coordinating staff development	
	Managing and coordinating hardware acquisition and installation	
	Coordination of ongoing partner involvement	
	Collecting data regarding student computer skills	
	Collecting data regarding student academic achievement	
	Collecting data regarding staff development on staff technology proficiencies	
	Collecting data regarding staff development focused on student computer knowledge and skills	
	Collecting data regarding staff development focused on integration of technology into the curriculum to improve academic achievement	
	Using collected data to monitor and evaluate progress towards benchmarks and timeline, as well as using this evaluation information for ongoing planning and modification	

Plan Implementation Timeline

Start Date (M/Y)	Completion Date (M/Y)		Activity or Benchmark	Target Audience	Person Responsible	Project Narrative Section #
	Projected	Actual				

Note :It is more useful to indicate actual start and/or comp letion dates rather than indicating “ongoing” in the date column.

Sustainability

District' s Role in Sustaining the Technology Over the Next Three to Five Years

Type of Support Provided	Individual(s) Responsible (Person(s) or Job Title(s))	Plan for Providing this Support
Ongoing equipment maintenance, repair, and replacement		
Technical support provided during school hours		
Technical support outside of school hours (Optional, but recommended)		
Professional development.		

School's Role in Sustaining the Technology Over the Next Three to Five Years

Type of Support Provided	Individual(s) Responsible (Person(s) or Job Title(s))	Plan for Providing this Support
Ongoing equipment maintenance, repair, and replacement		
Technical support provided during school hours		
Technical support outside of school hours (Optional, but recommended)		
Professional development		

Partners' Role in Sustainability the Technology Over the Next Three to Five Years

Type of Support Provided	Individual(s) Responsible (Person(s) or Job Title(s))	Plan for Providing this Support
Ongoing equipment maintenance, repair, and replacement		
Technical support provided during school hours		
Technical support outside of school hours		
Professional development		

Budget Form: Object of Expenditure

Major Object of Expenditure Categories	**Specific Grant Funds (add multiple columns if receiving multiple grants) (a)**	**School District General Fund (b)**	**Total Funds by Object of Expenditure (a)+(b)**
1000-1999 Certificated Personnel Salaries			
2000-2999 Classified Personnel Salaries			
3000-3999 Employee Benefits			
4000-4999 Books and Supplies			
5000-5999 Services and Other Operating Expenditures			
Indirect Costs at an established rate (excluding the 6000-6999 category)			
6000-6999 Capital Outlay			
Total Funds			

Implementation of Technology Plan

Budget Form: Budget Narrative

Line Item Category	Narrative Description
1000-1999 Certificated Personnel Salaries	
2000-2999 Classified Personnel Salaries	
4000-4999 Books and Supplies	
5000-5999 Services and Other Operating Expenditures	
6000-6599 Capital Outlay	

CHECKLIST for PLAN COMPLETENESS

Does the District's Completed Plan Include the Necessary Components of a Technology Plan Focused on Student Centered Learning?

As a final check that the district plan includes everything necessary to ensure successful implementation, consider reviewing the completed plan against the following questions.

Curriculum – Does this component include clear goals and a realistic strategy for using telecommunications and technology to improve teaching and learning as described in the district's comprehensive improvement plan? Are a timeline and benchmarks for implementing the planned strategies included?

Professional Development – Does this component define the professional development needs of teachers, administrators and technical support staff so that the strategies for using telecommunications and technology to assist students in meeting content standards can be implemented and the curricular goals can be achieved? Are a timeline and benchmarks for implementing the planned strategies included?

Infrastructure, Hardware, Technical Support and Software – Does this component include a timeline and detailed list of the infrastructure, hardware, technical support and software needed to support implementation of the plan? Are a timeline and benchmarks for obtaining the identified infrastructure, hardware, technical support and software included?

Funding and Budget – Does this component include a budget that identifies the costs and potential funding sources for supplying the infrastructure, hardware, technical support, software, and professional development needed to support implementation of the plan?

Monitoring and Evaluation – Does this component include a monitoring process that enables the school district to monitor implementation of the plan so that any necessary mid-course corrections can be made? Does this component include an evaluation process to determine what effect implementing the plan has had on student achievement? Are persons responsible and a regular schedule for monitoring and evaluation included?

Resources

Preface

California Department of Education Website--
Academic Content Standards www.cde.ca.gov/board
Improving America's Schools Act (IASA) www.cde.ca.gov/iasa

Curriculum Component

1) State standards: Posted on http://www.cde.ca.gov/board/
2) International Society for Technology in Education (ISTE): *National Educational Technology Standards for Students*, 2000.
3) Betty Silva--did you say you knew of an assessment tool to determine if technology had been integrated into the curriculum?
4) *Does anyone know places (websites, etc) to find a list of good schools to visit*

Professional Development Component

1) CTAP^2 website www.iassessment.com/CTAP
3) C-LEARN--web site with standards-based lesson plans and electronic learning resources
4) "Ending the Siege: Introducing Technologies to the Regular Classroom" by Jamie McKenzie and other articles from From Now On The Education Technology Journal.
5) The CEO Forum School Technology and Readiness Report, *Professional Development: A Link to Better Learning*, 1999. http://www.ceoforum.org/downloads/99report.pdf
6) CETL a professional development publication recommended by Heidi Haugen
7) Professional Development Consortia

Infrastructure, Hardware, Technical Support, and Software Component

COSN Total Cost of Ownership

Funding and Budget Component

CSMART website
CDE website

Monitoring and Evaluation Component

A. Glossary of Terms and Acronyms

Technology-- A definition of technology should be agreed upon by the Commission and included in the guidelines. Technology is not just computers. The relevant law defines technology as "technology based equipment, materials, and networks." Specifically the definition of technology could include television, video technology, microscopic cameras, computer-based laboratories, and digital cameras.

IASA
LIP
CSMART
TICAL
CLRN

Appendix A
School Improvement Planning Requirements

Planning under the Public Schools Accountability Act
Under this Act, schools are ranked based on their Academic Performance Index (API). If a school is low in the rankings, the school will have an opportunity through the Immediate Interventions/Under-performing Schools Program to participate in a funded planning process in which the school assesses the learning needs of its students and prepares an action plan to improve academic achievement. While this planning does not require the express use of educational technology, Education Code section 52054 (f) does require that (f) The school action plan shall focus on improving pupil academic performance, improving the involvement of parents and guardians, improving the effective and efficient allocation of resources and management of the school, and identifying and developing solutions that take into account the underlying causes for low performance by pupils. As the thoughtful use of education technology can assist in all of these areas, a local technology plan could be easily woven in to support this school action plan.

Planning under the School-Based Coordinated Categorical Program
Under this Act, the school site council at any school receiving categorical funding must prepare a school plan to meet the instructional needs and learning styles of all students, including an annual budget to expend the categorical funding provided the site. The required contents of this plan are spelled out in Education Code section 52853. As with the Immediate Interventions/Under-performing Schools Program plan, this plan does not specifically require the inclusion of the use of educational technology. Nonetheless, education technology needs to be considered when the school site council plans the "curricula, instructional strategies and materials responsive to the individual needs and learning styles of each pupil." Additionally, a local technology plan could be easily woven in to support this school site plan as the required components of this school site plan are virtually the same as the components outlined for local education technology plans in this Guide.

Planning under the federal Improving America's School Act
School districts receiving federal Title I funds were required in 1995 to develop five-year Local Improvement Plans. These plans center around five themes: Standards and Assessment, Teaching and Learning, Professional Development, Family and Community Partnerships, and Funding and Governance. Several of these themes specifically refer to the use of technology. Under Teaching and Learning, school districts consider how they will provide all students with the opportunity to use technology that enhances curriculum and instruction. Under Professional Development, the plan needs to enable teachers to develop further expertise in subject content, teaching strategies, uses of technologies, and other essential elements in teaching to high standards.

Appendix B

ELEMENTS OF HIGH QUALITY PROFESSIONAL DEVELOPMENT

Developed by the California Professional Development Consortia--October 1996

IS FOCUSED on conditions for improving student learning with attention to developing curriculum and designing instruction compatible with current research, state frameworks, and content and performance standards.

ENCOURAGES EDUCATORS to participate in the planning of their own professional learning.

USES DATA to inform teaching and learning decisions.

IS RELATED to identified classroom, school, and district goals.

PROMOTES LONG-TERM, in-depth, sustained learning activities that include a variety of strategies to help educators apply what they've learned.

PROVIDES OPPORTUNITIES for giving and receiving feedback. Examples include: analysis of portfolios, examination of student work, membership in peer support groups, learning from videotaped and audio-taped lessons, self critique, participation in peer coaching and helping trios, keeping anecdotal records and journals.

ALLOCATES TIME for educators to reflect, analyze, and refine their own professional practice.

PROVIDES OPPORTUNITIES for school and district staff and other stakeholders to adapt strategies to diverse classroom needs.

ENCOURAGES EDUCATORS to develop collaborative relationships and a safe learning environment that promotes and sustains continuous improvement of professional practice.

RECOGNIZES that educators learn in a variety of ways.

IS EMBEDDED in the workplace so it is more closely related to educators' work experiences.

IS ACCESSIBLE to teachers of all levels and groups of students.

OFFERS OPPORTUNITIES for leadership development.

REQUIRES KEY ADMINISTRATIVE PARTICIPATION, support, and follow up.

USES STANDARDS and monitors progress in order to improve the impact of professional development.

TEACHER COMPUTER-BASED PRELIMINARY TECHNOLOGY PROFICIENCIES

Appendix C

Teacher Computer-Based Preliminary Technology Proficiencies

General Computer Knowledge and Skills			
BASIC			
	Introductory	**Intermediate**	**Proficient**
General Knowledge of basic hardware and software terminology G1	• Identifies hardware components, peripherals and their purpose • Identifies icons, windows and menus	• Uses icons, windows and menus • Uses basic peripherals (e.g. CD-ROM, storage media, etc.)	• Incorporates general knowledge of basic hardware and software into lesson design as appropriate (e.g. vocabulary, naming and saving conventions, printing, etc.)
Operation and care of hardware G2	• Starts up and shuts down computer and peripherals • Uses a mouse • Inserts and ejects diskettes, CD-ROM, etc. • Uses software from a disk, hard drive, or CD-ROM • Creates, names/renames folders and files • Starts an application and creates a document • Names, saves, saves as, retrieves and revises a document • Prints documents	• Organizes the desktop • Initializes, formats, names diskettes • Copies documents between computer and diskettes • Chooses printer location	• Allocates memory needed by applications • Accesses and changes control panels • Sets software preferences • Makes more system memory available • Performs regular maintenance • Organizes files and programs • Uses print preview and options • Opens and works with more than one application at a time • Shares files and printers on a network • Installs software • Selects and uses appropriate anti virus software
Implements basic troubleshooting techniques G3	• Restarts a frozen computer • Identifies directly connected or networked printer problems	• Troubleshoots basic hardware, software and printing problems before accessing the appropriate level of support • Checks cables for proper attachment • Solves simple printer problems with directly connected printer	• Troubleshoots common hardware, software, printing and network problems before accessing the appropriate level of support
Integration, Student Learning & Classroom Management G5		• Explains various models for classroom management of technology • Cites examples of appropriate applications of technology as an educational tool	• Selects and uses effective classroom management techniques using technology in a limited number of educational settings • Selects and implements appropriate technology tools to support teaching and learning processes

TEACHER COMPUTER-BASED PRELIMINARY TECHNOLOGY PROFICIENCIES

Internet			
BASIC			
	Introductory	**Intermediate**	**Proficient**
General Knowledge and Appropriate Use of Hardware, Software (e.g. Web Browsers and connections) G1, G5	• Launches a browser and uses the tool bar • Specifies a URL and can point and click to navigate on existing links • Changes window sizes • Views history • Accesses help file • Explains basic internet terminology • Accesses Internet through a modem or network	• Explains the anatomy of a URL • Configures preferences for software • Sets a home page • Refreshes or reloads a page • Hides, displays or configures the tool bar • Locates and opens a local file within the browser • Copies, pastes and saves from web pages • Downloads files • Configures page setup to print citation resources	• Selects helper files/applications used to open downloaded files • Maintains and organizes bookmarks/favorites • Troubleshoots address errors (i.e. 404 errors) • Uses and manages multiple windows
Communication Collaboration S3, S4	• Explains use of email as a means of communication	• Uses email to communicate with members of a group	• Explains the use of chat, newsgroups, or threaded discussions to communicate with members of a group
Research Tools S7	• Conducts basic searches	• Explains the differences between search indexes, search engines and metasearch tools • Understands Boolean logic • Conducts natural language searches	• Uses advanced search features • Conducts multiple search strategies to locate and validate information • Uses internet search as a resource for lesson development
Ethics & Policies G4, S13, S14		• Explains issues surrounding Internet use in the classroom (e.g. copyright, management, student safety, AUP, etc.)	• Implements procedures and management techniques concerning Internet use in the classroom for instruction
Information Literacy S5, S8	• Evaluates information for accuracy • Identifies whether a source is credible	• Organizes information • Analyzes and interprets information	• Uses a wide variety of sources • Filters information for relevancy • Incorporates information literacy strategies into lesson design
Integration, Student Learning & Classroom Management S6, S9-S12		• Locates resources appropriate for integrating technology into lesson design	• Selects and implements internet resources appropriately in lesson design • Selects and uses effective classroom management techniques

TEACHER COMPUTER-BASED PRELIMINARY TECHNOLOGY PROFICIENCIES

Email			
BASIC			
	Introductory	**Intermediate**	**Proficient**
General Knowledge and Appropriate Use of Hardware, Software **G1, G5**	• Explains telecommunications terms • Explains the 3 main components of an email address	• Configures email preferences • Attaches, receives and opens attachments • Creates and uses an address book • Recognizes and uses embedded web links	• Manages an address book • Locates, opens and manages attached files
Communication and Collaboration **S3, S4**	• Starts up program, retrieves and reads email • Saves, prints and deletes email • Composes, edits, and sends new email	• Uses reply to sender, reply to all and forwarding appropriately • CC's and BCC's email to interact with one or a few people	• Employs email as a tool to interact with and provide information to students, parents, and other community members
Integration, Student Learning & Classroom Management **S6, S9-S12**	• Explains procedures and processes for use of email in the classroom	• Describes use of email in the classroom for connecting with others such as: keypals, global classrooms, parallel problem-solving, mentoring, etc.	• Designs curricular lessons which utilize email as a part of the activity • Selects and uses effective classroom management techniques using email in a limited number of educational settings • Selects and implements appropriate email tools to support teaching and learning
Legal, Ethical **G4, S13, S14**	• Explains netiquette • Explains issues surrounding student safety and security	• Practices appropriate netiquette related to email • Implements issues related to personal safety and security	• Incorporates netiquette in classroom instruction • Implements student safety and security procedures in instruction

TEACHER COMPUTER-BASED PRELIMINARY TECHNOLOGY PROFICIENCIES

Word Processing			
BASIC			
	Introductory	**Intermediate**	**Proficient**
General Knowledge and Appropriate Use of Hardware, Software G1, G5	• Identifies word processing terms (e.g., word processing, cursor, styles, etc.) • Opens, saves, prints and deletes a document	• Navigates in a large document • Accesses and uses Help • Previews document to identify layout problems • Uses basic proofing tools (e.g. spell check, grammar check)	• Finds and replaces text • Saves word processing documents in other file formats • Retrieves documents with the find file command
Communicate through printed media S2	• Types, selects, corrects, deletes, text within a document • Adjusts tabs and margins • Applies and changes font, character and paragraph formatting • Changes on-screen view mode and magnification	• Copies, pastes text within and between documents • Uses styles to change the appearance of paragraphs and outlines • Uses templates • Applies borders • Creates numbered and bulleted lists • Adds and deletes page breaks, and creates headers and footers • Creates tables using built-in software assistance	• Uses word processors to create lesson plans, articles, reports, etc. • Enhances documents by inserting graphics • Incorporates drawing tools • Resizes and relocates graphics within a document • Creates temp lates • Formats text in columns with different fonts and colors
Integration, Student Learning and Classroom Management S6, S9-12		• Transcribes handwritten documents into word processed documents • Creates a simple word processed document	• Creates enhanced word processed documents for classroom use • Designs lessons that utilize word processing as part of the activity

TEACHER COMPUTER-BASED PRELIMINARY TECHNOLOGY PROFICIENCIES

Publishing			
BASIC			
	Introductory	**Intermediate**	**Proficient**
General Knowledge and Appropriate Use of Hardware, Software **G1, G5**	• Defines publishing terms (e.g., page layout, stories, fields, etc.) • Opens, saves, prints and deletes a document	• Navigates in a large document • Accesses and uses Help • Previews document to identify layout problems • Uses basic proofing tools (e.g. spell check, grammar check)	• Finds and replaces text • Saves text documents in other file formats
Communicates through printed media **S2**	• Creates a new document • Changes document setup • Copies, cuts and pastes text and graphics • Changes on-screen view mode and magnification • Incorporates clip art • Changes typefaces, font size and other text attributes • Changes text alignment/justification • Identifies types of publishing software (e.g. word processing, page layout, image/graphic, etc.) • Undo unwanted changes	• Imports/ places and resizes graphics, (e.g. clip art, charts, auto-shapes, etc.) both as objects and as type • Uses suitable size, style and number of fonts • Creates a simple shape graphic • Controls text flow around graphics • Moves, arranges and layers objects • Creates numbered and bulleted lists • Uses guides and rulers • Creates multiple text columns • Controls page numbering • Changes page tabs, margins and indents • Edits line and shape style and fill • Creates and modifies headers and footers	• Understands elements of basic design (e.g. white space, page layout, etc.) • Saves documents in appropriate formats • Integrates various and appropriate software for desktop publishing (e.g. graphics, layout, etc.) • Incorporates digital images from external sources (e.g. cameras, scanners, WWW, etc.)
Integration, Student Learning & Classroom Management **S6, S9-S12**	• Describes various types of publishing media and possible classroom applications	• Selects media to support instructional objectives	• Develops student assignments that embed elements of effective design • Plans for effective classroom management of available resources

TEACHER COMPUTER-BASED PRELIMINARY TECHNOLOGY PROFICIENCIES

Databases			
BASIC			
	Introductory	**Intermediate**	**Proficient**
General Knowledge and Appropriate Use of Hardware, Software G1, G4, G5	• Defines database terms (e.g. records, fields, etc.) • Creates, opens and saves a database • Selects, moves, copies, deletes, clears and inserts fields and records	• Formats fields to reflect appropriate data (e.g. date, name, currency, etc.) • Explains differences between report and query/search/find • Uses print preview to identify print problems	• Finds and replaces data • Sorts, matches and goes to specific records • Exports data from database • Adds header and footer
Manage records (e.g. grade book, attendance, etc.) S1	• Enters text and data into appropriate fields	• Uses find command to locate a specific record • Creates or modifies report layout	• Merges database information with word processing document to produce "form letters"
Communicate through Printed media S2	• Sorts data to produce reports (e.g. alphabetical listings, etc.) • Formats text and numbers in record (e.g. boldface, currency, etc.)	• Creates a variety of report layouts • Sorts or defines data to print only required records (e.g. students reading at grade level)	• Imports data from other applications • Creates new layouts or edits existing layouts for specific productivity or curricular goals
Integration, Student Learning & Classroom Management S6, S9-12	• Describes the educational uses of databases	• Identifies lessons that require the manipulation of data • Creates new databases related to content area. (e.g. world populations, animal data, etc.)	• Designs curricular lessons which utilize databases to enhance learning outcomes • Develops student assignments that require management and manipulation of a variety of data

TEACHER COMPUTER-BASED PRELIMINARY TECHNOLOGY PROFICIENCIES

Spreadsheets			
BASIC			
	Introductory	**Intermediate**	**Proficient**
General Knowledge and Appropriate Use of Hardware, Software G1, G5	• Defines spreadsheet terms (e.g. cells, alignment, formula, etc.) • Creates, opens and saves spreadsheets • Navigates using the mouse and tabs • Undo unwanted changes • Locates cells based on column/row addresses • Selects, moves, copies, deletes, clears and inserts cells • Selects entire column or row • Resizes cells and rows • Changes typeface, font size and other cell attributes	• Sorts cells • Changes text cell alignment and justification • Replicates a formula or range of cells (e.g. :fill") • Creates simple bar or pie charts • Adds shading and borders • Selects charts for appropriate data representation	• Saves in a variety of formats • Imports/exports charts and data (e.g. spreadsheet to word processing, etc.) • Aligns and rotates text and numbers • Creates a variety of charts • Labels graphs appropriately
Manage records (e.g. grade book, attendance, etc.) S1	• Enters text and data into specific cells	• Creates formula cells (e.g. sum, average, etc.) • Formats cells for appropriate content such as text, decimal alignment, currency	• Utilizes grade book templates • Maintains student records
Communicate through Printed media S2	• Adjusts layout and margins • Uses print preview and print document with title • Creates and edits headers, footers and page numbers • Sets up print options for grid lines, zoom, etc.	• Prints a specific range of cells, pages and sheets • Searches for and replaces text • Changes size, placement and title of charts • Changes page margins	• Imports/exports charts into word processing application
Integration, Student Learning & Classroom Management S6, S9-12	• Describes the educational uses of spreadsheets	• Creates new spreadsheets related to content area	• Designs curricular lessons requiring use of spreadsheet • Creates appropriate charts for a content lesson

TEACHER COMPUTER-BASED PRELIMINARY TECHNOLOGY PROFICIENCIES

Presentation Software			
BASIC			
	Introductory	**Intermediate**	**Proficient**
General Knowledge and Appropriate Use of Hardware, Software **G1, G5**	• Defines presentation and multimedia terms (e.g. slides/cards, slideshow, hyper-navigation, etc.) • Creates, opens, modifies and saves presentations • Defines available tools (e.g. drawing, text, etc.) • Uses templates or wizards to create a new presentation • Adds new slides or cards • Inserts text, formats text or adds text box • Uses toolbar or menus to apply formatting changes • Inserts clip art or digitized pictures	• Inserts or changes slide or card design • Navigates using scrollbar, slide sorter, menu, key commands, etc. • Switches between different page views • Re-arranges the order of slides or cards • Applies backgrounds and objects appropriately • Uses available tools (e.g. drawing, text, etc.) • Incorporates sound • Defines different image types (i.e. TIFF, GIF, PCX) • Connects, configures and troubleshoots peripheral devices for presentation	• Creates and edits navigational buttons to move through presentation • Navigation through presentation is clear and easy to understand • Applies transitions and effects, if appropriate, to slides or cards • Incorporates hypertext links • Incorporates animations from library • Incorporates movies from library • Records sound and inserts in presentation • Incorporates clip art from other sources (e.g. web, scanner, etc.) • Organizes presentation resources in a folder on the desktop or server • Edits clip art (if appropriate)
Communicates through print media **S2**	• Prints slides	• Demonstrates understanding of basic design elements (i.e. color, design, space and composition) • Prints using advanced printing options	• Prints handouts that enhance instructional objectives (e.g. outlines, notes, etc.)
Integration, Student Learning & Classroom Management **S6, S9-12**	• Describes the educational uses of presentation software	• Organizes information in a clear, consistent way for the viewer • Creates cards or slides using effective design to enhance communication • Uses appropriate background and text colors to ensure clarity and readability	• Designs curricular lessons which utilize multimedia to enhance learning outcomes • Follows fair use and copyright law for text, graphics, and sound

TEACHER COMPUTER-BASED PRELIMINARY TECHNOLOGY PROFICIENCIES

Instructional Technology			
BASIC			
	Introductory	**Intermediate**	**Proficient**
Analyzes best practices and research findings **G5, S12**	• Locates learning, teaching and communication resources related to implementation in the classroom	• Is able to locate and adapt lessons based upon best practices and research findings	• Analyzes best practices and research findings on the use of technology and designs lessons accordingly
Considers content to be taught and selects the best tech resources to support, manage and enhance learning **S5, S10**	• Identify established criteria used to evaluate digital media • Is provided with examples of lesson plans that integrate technology • Identifies process used to match technology with content	• Practices evaluating educational digital media using established criteria • Practices including appropriate technological resources in classroom lesson plans	• Evaluates educational digital media using established criteria • Includes appropriate technological resources in classroom lesson plans
Identifies student learning styles and determines appropriate resources **S6, S9**	• Is aware of learning style inventories for students • Examines a variety of technology resources for their applicability to learning styles	• Selects and uses activities to identify student learning styles • Uses a variety of technology resources in lesson plans to meet student learning styles	• Integrates appropriate technology resources and adapts lessons and classroom practice according to learning style inventory results
Demonstrates ability to create and maintain effective learning environments using computer based technology **S11**	• Describes various models of technology use that enhances learning and increases efficiency and productivity	• Uses teacher productivity tools for classroom management (e.g. home-school communication, student records and grades) • Lesson plans reflect a management system for computer based activities	• Effectively uses technology for whole class, small group and individual instruction • Classroom activities allow all students to build upon their technology skills and increase learning • Implements management procedures that support assessment of student involvement and achievement
Demonstrates knowledge of privacy security and safety issues **G4, S13, S14**	• Explains the need for and use of copyright policy, protection of student privacy, security and safety	• Implements established policies for safe, private and secure practices in personal work • Personally implements established policies surrounding copyright and plagiarism	• Implements established policies for safe, private and secure practices in classroom • Implements policies surrounding copyright and plagiarism in classroom